2012

Time : 3 hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A

(Objective Type Questions)

Answer all questions : \( 2 \times 10 = 20 \)

1. Choose the correct answer of the following :

   (a) If \( c \) is a variable initialized to 1, how many times will the following loop be executed ?

      \[
      \text{While } ((c > 0) && (c < 60)) \{ \text{c++ ; } \}
      \]

   (i) 60
   (ii) 1
   (iii) 61

   CX – 4/3  \hspace{1cm} (Turn over)
(b) If \( a = -11 \) and \( b = -3 \). What is the value of \( a \% b \)?

(i) 3  
(ii) \(-3\)  
(iii) -2  
(iv) 2

(c) Pick up the odd one out from the following:

(i) \( x = 1 \)  
(ii) \( x = -1 \)  
(iii) \( x = -1 \)  
(iv) \( x = x - 1 \)

(d) Which of the following directive creates functions like macros?

(i) \#define  
(ii) \#undef  
(iii) \#ifdef  
(iv) \#include

(e) Which is the correct way to declare a pointer?

(i) \texttt{int \_ptr x;}
(ii) int * ptr;
(iii) * int ptr;
(iv) None of these

(f) A typecast is used to:
(i) Define a new data type
(ii) Rename an old type
(iii) Force a value to be of a particular variable type
(iv) None of these

(g) Operator precedence determines which operator?
(i) Is most important
(ii) Operates on the largest numbers
(iii) Is used first
(iv) None of these

(h) If you don't initialize a static array, what will be the elements set to?
(i) An undetermined value
(ii) A floating point number
(iii) Zero
(iv) None of these

(i) The meaning of if (1) is:
(i) Always false
(ii) Always true
(iii) Both (i) and (ii)
(iv) None of these

(j) Which of the following is not part of string library?
(i) scanf(st)
(ii) strlen(st)
(iii) strcpy(st)
(iv) strcat(st)

Group – B

(Long-answer Type Questions)

Answer any four questions: 15×4 = 60

2. What are pre-processors in C? Explain each of them with simple examples.

CX – 4/3 (4) Contd.
3. (a) Write a program to find the number of characters in a string using pointers.
   (b) Describe the external variable with example.

4. Distinguish between the following:
   (a) Array Variable and Pointer Variable
   (b) Structure and Union

5. What is Flow Chart? Define the symbols used in flow charts. Also discuss the advantages and disadvantages of flow chart.

6. Write a program in 'C' to calculate the factorial of any given number using recursive function.

7. Write a program in 'C' to sort the elements of array in descending order using Selection Sort Technique.

8. Draw a flow chart and then write a 'C' program to enter the roll number and marks of any four subjects of few students from the keyboard and write to a "student.dat" file.

9. Explain the difference between parameter

   CX – 4/3

   (5) (Turn over)
10. Develop a flow chart and then write a 'C' program to display all prime numbers less than the number entered by the user.